

What is claimed is:

1. An integral three-dimensional article having interstitials therein, said article comprising an axial direction and having lateral dimensions perpendicular thereto, said lateral dimensions of said article defining a periphery of said article, said article comprising alternately disposed elongate members and interstitials therebetween, said elongate members being arranged in two planes, a first plane of at least one elongate member and a second plane of at least one elongate member, each said plane of at least one elongate member intersecting at an included angle to define a stage, said article comprising a plurality of stages, each stage being axially joined to an adjacent stage.
2. An article according to claim 1, wherein each stage is rotationally offset from an adjacent stage.
3. An article according to claim 2 having interstitials therethrough.
4. An article according to claim 1, wherein each said plane comprises a plurality of elongate members.
5. An article according to claim 4, having two planes of elongate members disposed in member pairs, wherein a plurality of elongate members of one said member plane nests within a member pair of said other member plane.
6. An article according to Claim 5, having a plurality of axially nesting stages, wherein each stage has an axial face, said axial face being domed and having an angle equivalent to said included angle.
7. An article according to claim 6, wherein said elongate members lying within an elongate member plane form a closed figure, said elongate member plane further having at least two elongate members disposed within said closed figure and intersecting at an angle.
8. An article according to claim 7, wherein said elongate members are arranged in two sets, a first set of elongate members and a second set, each said elongate member of said first set and said second set having a first end and a second end opposed thereto, said at least one elongate member of said first set and said at least one elongate member of said second set intersecting at an included angle, said at least one elongate member of said first set spanning the entire lateral dimension of said article, wherein each end of said at least one elongate member of said first set is juxtaposed with said

periphery of said article, said first end of said at least one elongate member of said first set being free, and said second end of said at least one elongate member of said first set being juxtaposed with another said elongate member, said elongate members of said second set spanning a distance less than said entire lateral dimension of said article, wherein said at least one elongate member of said second set has at least one end juxtaposed with another said elongate member.

9. An article according to Claim 8, said article comprising three layers of substantially parallel elongate members in each stage, each said layer being offset from an adjacent layer in the axial direction, said layers comprising, in sequence in the axial direction, at least one elongate member which spans the entire lateral dimension of said article, a second layer comprising at least one elongate member spanning the entire lateral dimension of said article, and a third layer comprising at least one elongate member, said elongate member spanning a distance less than said entire lateral dimension.
10. A process for producing an integral multi-stage three-dimensional article having an axial direction and an unconstrained length in said axial direction and having interstitials therein, said process comprising the steps of  
 providing at least two complementary mold segments, said mold segments being juxtaposable to circumscribe an enclosed cavity, said cavity having an axial direction and a lateral direction perpendicular thereto, each said mold segment comprising a wall and having a plurality of members extending from a proximal end juxtaposed with said wall into said cavity, said members defining an angle relative to said axial direction;  
 juxtaposing said mold segments to enclose a cavity therebetween, wherein each said member extending into said cavity has a distal end, said distal end contacting said wall of a diametrically opposed mold segment and/or another member ;  
 disposing a flowable, solidifiable material in said cavity;  
 allowing said material to solidify; and  
 separating each said mold segment from said solidified material, said separation occurring in a separation direction parallel to said protruding members of that mold segment.
11. The process according to claim 10, wherein said step of providing mold segments comprises the step of providing mold segments having a plurality of sets of extending

members, wherein each set of extending members produces a portion of a stage of said three-dimensional article.

12. The process according to claim 11, comprising the step of providing four complementary mold segments to circumscribe said cavity, each of said complementary mold segments subtending an angle of 90 degrees.
13. The process according to claim 11, comprising the step of sequentially removing said mold segments from said article.
14. An article made according to the process of claim 10.
15. An article made according to claim 14, wherein said article comprises a static mixer.
16. An apparatus for molding a multi-stage integral three-dimensional articles having interstitials therein, said apparatus comprising  
at least two complementary mold segments, said mold segments being juxtaposable to enclose a cavity therebetween, said cavity having a longitudinal axis, said mold segments further comprising at least one member extending into said cavity at an angle relative to said axis  
and a transport for juxtaposing each said mold segment with the other in closed relationship to form said cavity, wherein said extending members extend in a direction from a proximal end juxtaposed with a wall of its said respective mold segment to a distal end, said distal end contacting either a wall of a diametrically opposed mold segment or another member when said mold segments are in the closed position, said transport further being capable of separating each mold segment away from said cavity in a separation direction, said separation direction being parallel to said members of said respective mold segment.
17. An apparatus according to claim 16, wherein said members extend from a proximal end to a distal end offset from said proximal end in the axial direction.
18. An apparatus according to claim 17, comprising four mold segments, each said mold segment subtending 90 degrees.
19. An apparatus according to claim 18, wherein each said mold segment has a set of extending members, each said set of extending members producing a portion of a stage of said article to be molded.
20. An apparatus according to claim 19, wherein each each mold segment comprises at least three sets of extending members.